

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A method of installing software on a storage device
2 controlling apparatus, ~~which includes~~
3 at least one channel controller having a circuit board on which are formed a file
4 access processing section receiving requests to input and output data in files as units from an
5 information processing apparatus via a first network and an I/O processor outputting I/O requests
6 corresponding to said requests to input and output data to a storage device;
7 at least one disk controller executing input and output of data into and from said
8 storage device in response to the I/O requests sent from said I/O processor; and
9 a second network coupling said channel controller and said disk controller so as to
10 be able to communicate with each other;
11 said method comprising:
12 writing software for enabling said a file access processing section of a
13 channel controller of the storage device controlling apparatus to function, said software
14 being written into said storage device by communicating with said channel controller via
15 said second network
16 wherein said storage device controlling apparatus comprises:
17 a plurality of channel controllers, each having a circuit board on
18 which are formed a file access processing section receiving requests to input and
19 output data in files as units from an information processing apparatus via a first
20 network and an I/O processor outputting I/O requests corresponding to said
21 requests to input and output data to a storage device;

22 a plurality of disk controllers executing input and output of data
23 into and from said storage device in response to the I/O requests sent from said
24 I/O processor; and
25 a second network coupling said plurality of channel controllers and
26 said plurality of disk controllers so as to be able to communicate with each other,
27 wherein said software is written into said storage device by communicating
28 with said channel controller via said second network.

1 2. (Currently Amended) A method of installing software on a storage device
2 controlling apparatus, ~~which includes~~

3 ~~at least one channel controller having a circuit board on which are formed a file~~
4 ~~access processing section receiving requests to input and output data in files as units from an~~
5 ~~information processing apparatus via a first network and an I/O processor outputting I/O requests~~
6 ~~corresponding to said requests to input and output data to a storage device I/O;~~

7 ~~at least one disk controller executing input and output of data into and from said~~
8 ~~storage device in response to the I/O requests sent from said I/O processor; and~~

9 ~~a second network coupling said channel controller and said disk controller so as to~~
10 ~~be able to communicate with each other;~~

11 said method comprising:

12 writing a piece of firmware into each of nonvolatile memories provided
13 for ~~said a~~ channel controller and ~~said a~~ disk controller of the storage device controlling
14 apparatus, via said second network

15 wherein said storage device controlling apparatus comprises:

16 a plurality of channel controllers, each having a circuit board on
17 which are formed a file access processing section receiving requests to input and
18 output data in files as units from an information processing apparatus via a first
19 network and an I/O processor outputting I/O requests corresponding to said
20 requests to input and output data to a storage device I/O;

21 a plurality of disk controllers executing input and output of data
22 into and from said storage device in response to the I/O requests sent from said
23 I/O processor; and
24 a second network coupling said plurality of channel controllers and
25 said plurality of disk controllers so as to be able to communicate with each other,
26 wherein said piece of firmware is written via said second network.

1 3. (Currently Amended) A method of installing software on a storage device
2 controlling apparatus according to claim 1, wherein a storage area for storing the software for
3 enabling said file access processing section of said channel controller to function is assigned in
4 said storage device; wherein said storage device controlling apparatus is coupled to a host via a
5 SAN.

1 4. (Original) A method of installing software on a storage device controlling
2 apparatus according to claim 1, wherein said software for enabling said file access processing
3 section to function is software for implementing a function of an operating system that provides
4 a function of a file system.

1 5. (Currently Amended) A method of installing software on a storage device
2 controlling apparatus according to claim 1, wherein said second network is coupled to a
3 computer, and said software is written from said computer into said storage device by said
4 channel controller communicating with said computer, wherein said storage device controlling
5 apparatus receives data requests in block units based on fibre channel protocol.

1 6. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 1, wherein said second network is coupled to a
3 computer, said method further comprising:
4 storing, by said computer, information for identifying at least one specific channel
5 controller with which said computer is to perform said communication from among said at least
6 one channel controller; and

7 writing said software from said computer into said storage device by said
8 computer communicating with said at least one specific channel controller about which said
9 information is stored in said computer.

1 7. (Currently Amended) A method of installing software on a storage device
2 controlling apparatus according to claim 2, wherein said pieces of firmware are sent from a
3 computer coupled to said second network to said channel controller and said disk controller,
4 wherein said storage device controlling apparatus receives data requests in block units based on
5 fibre channel protocol.

1 8. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein said second network is coupled to a
3 computer, said method further comprising:

4 storing, by said computer, information for identifying at least one specific channel
5 controller and at least one specific disk controller with which said computer is to perform said
6 communication from among said at least one channel controller and said at least one disk
7 controller; and

8 writing said pieces of firmware from said computer into said at least one specific
9 channel controller and said at least one specific disk controller by said computer communicating
10 with said specific channel controller and said specific disk controller about which said
11 information is stored in said computer.

9 and 10. (Canceled)

1 11. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 1, wherein the software written into the storage
3 device enables the channel controller to function in a way that enables a storage system in which
4 the storage device controlling apparatus is disposed to function as a Network Attached Storage
5 (NAS).

1 12. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 1, wherein the software written into the storage
3 device comprises an operating system that enables the channel controller to function as a NAS
4 channel controller.

1 13. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein the firmware written into the
3 nonvolatile memories of the channel controller and the disk controller enables the channel
4 controller and the disk controller to function in a way that enables a storage system in which the
5 storage device controlling apparatus is disposed to function as a Network Attached Storage
6 (NAS).

1 14. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein the firmware written into the
3 nonvolatile memory of the channel controller comprises a microprogram for controlling the I/O
4 processor of the channel controller.

1 15. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein the firmware written into the
3 nonvolatile memory of the disk controller comprises a microprogram for controlling a CPU of
4 the disk controller.

1 16. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein the firmware written into the
3 nonvolatile memory of the channel controller comprises a loader and an installer used by the
4 channel controller to install an operating system into storage device for enabling the file access
5 processing section to function.

1 17. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 16, further comprising installing the operating

- 3 system into the storage device for enabling the file access processing section to function as a
- 4 NAS channel controller.

1 18. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, further comprising writing software for
3 enabling the file access processing section to function, the software being written into the storage
4 device by communicating with the channel controller via the second network.

1 19. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 1, wherein the second network comprises an
3 internal LAN in the storage device controlling apparatus.

1 20. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 1, wherein the at least one channel controller and
3 the at least one disk controller are further connected by a connecting section to a memory via a
4 high-speed bus.

1 21. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein the second network comprises an
3 internal LAN in the storage device controlling apparatus.

1 22. (Previously Presented) A method of installing software on a storage
2 device controlling apparatus according to claim 2, wherein the at least one channel controller and
3 the at least one disk controller are further connected by a connecting section to a memory via a
4 high-speed bus.